Grade 6
Mathematics
Item Specifications

Missouri
DEPARTMENT OF ELEMENTARY & SECONDARY
EDUCATION

Table of Contents

Grade 6 Mathematics
Introduction

In 2014 Missouri legislators passed House Bill 1490, mandating the development of the Missouri Learning Expectations. In April of 2016, these Missouri Learning Expectations were adopted by the State Board of Education. Groups of Missouri educators from across the state collaborated to create the documents necessary to support the implementation of these expectations.

One of the documents developed is the item specification document, which includes all Missouri grade level/course expectations arranged by domains/strands. It defines what could be measured on a variety of assessments. The document serves as the foundation of the assessment development process.

Although teachers may use this document to provide clarity to the expectations, these specifications are intended for summative, benchmark, and large-scale assessment purposes.

Components of the item specifications include:

Expectation Unwrapped breaks down a list of clearly delineated content and skills the students are expected to know and be able to do upon mastery of the Expectation.

Depth of Knowledge (DOK) Ceiling indicates the highest level of cognitive complexity that would typically be assessed on a large scale assessment. The DOK ceiling is not intended to limit the complexity one might reach in classroom instruction.

Item Format indicates the types of items used in large scale assessment. For each expectation, the item format specifies the type best suited for that particular expectation.

Text Types suggests a broad list of text types for both literary and informational expectations. This list is not intended to be all inclusive: other text types may be used in the classroom setting. The expectations were written in grade level bands; for this reason, the progression of the expectations relies upon increasing levels of quantitative and qualitative text complexities.

Grade 6 Mathematics

Content Limits/Assessment Boundaries are parameters that item writers should consider when developing a large scale assessment. For example, some expectations should not be assessed on a large scale assessment but are better suited for local assessment.

Sample stems are examples that address the specific elements of each expectation and address varying DOK levels. The sample stems provided in this document are in no way intended to limit the depth and breadth of possible item stems. The expectation should be assessed in a variety of ways.

Grade 6 Mathematics

Mathematics	6.RP.A.1

	Ratios and Proportional Relationships	
RP		
A	**Understand and use ratios to solve problems.**	
1	Understand a ratio as a comparison of two quantities and represent these comparisons.	

<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u>	<u>DOK Ceiling</u> 3
The student will represent a ratio as a comparison of two quantities in simplest form. The student will represent ratios in three different forms: a to b, a:b or $\frac{a}{b}$. The student will understand that ratios can be compared whole to part, part to whole or part to part. Students will represent the comparison as a verbal model in context.	<u>Item Format</u> Selected Response Constructed Response Technology Enhanced
	<u>Sample Stems</u>

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Students will be able to compute ratios with whole numbers. The values of a and b will be limited to whole numbers.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.RP.A.2

| RP A 2 | **Ratios and Proportional Relationships**

Understand and use ratios to solve problems.

Understand the concept of a unit rate associated with a ratio, and describe the meaning of unit rate. | |

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will write a unit rate as a/b associated with a ratio a: b with b ≠ 0. The student will understand the concept of a unit rate as a/b associated with a ratio a: b with b ≠ 0. The student will determine a unit rate when given a ratio. The student will understand that in unit rate (a/b), b = 1. The student will describe the meaning of rate in the context of the relationship.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Students will be able to compute unit rates with positive rational numbers. The value of a is limited to positive rational numbers. The value of b is limited to natural numbers. The concept of division of integers is not a 6th grade standard and has not been introduced.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.RP.A.3.a

RP	**Ratios and Proportional Relationships**	
A	**Understand and use ratios to solve problems.**	
3	Solve problems involving ratios and rates.	
a	Create tables of equivalent ratios, find missing values in the tables and plot the pairs of values on the Cartesian coordinate plane.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will be able to create a table of equivalent ratios.	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will be able to find missing values in tables.	
The student will be able to plot the pairs of values from a table on the Cartesian coordinate plane.	**Sample Stems**

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Students will be able to compute ratios/unit rates problems with whole numbers. The numerator is limited to positive rational numbers and the denominator is limited to natural numbers. All table values must be proportional. Limited to the first quadrant on the Cartesian coordinate plane.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.RP.A.3.b

RP	**Ratios and Proportional Relationships**	
A	**Understand and use ratios to solve problems.**	
3	Solve problems involving ratios and rates.	
b	Solve unit rate problems.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will solve unit rate problems involving real world situations. The student will use a rate to determine the unit rate with the denominator of one. The student will calculate the better choice for a given situation when given two quantities/prices. The student will use unit rates and rates to determine to solve maximize and minimize problems	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems Given two rates (e.g., $/lbs., miles per gallon) determine which is situation minimizes the cost.. John bought 25 apples for $3. Jane bought the same apples at the same price but only needed 10. How much should Jane have to pay? Jane needs sugar. Should she buy a four pound bag for $2.58 or a five pound bag that is on sale for $3.25 if she wants the best deal?

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Students will be able to compute ratios/unit rates problems with whole numbers. The numerator is limited to positive rational numbers and the denominator is limited to natural numbers.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.RP.A.3.c

RP	**Ratios and Proportional Relationships**	
A	**Understand and use ratios to solve problems.**	
3	Solve problems involving ratios and rates.	
c	Solve percent problems.	

<u>Expectation Unwrapped</u> – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will calculate a percent of a quantity as a rate per one hundred. The student will calculate a quantity when given a percent. The student will solve problems by finding the whole given a part. The student will solve problems by finding the part given the whole.	**<u>DOK Ceiling</u>** 3
	<u>Item Format</u> Selected Response Constructed Response Technology Enhanced
	<u>Sample Stems</u> Given two quantities in a part/whole percent relationship find the third quantity (e.g., X * Y% = Z).
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Can be over 100% or less 1%, limited to whole numbers except for the benchmark fractions. These could all include real world situations.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.RP.A.3.d
RP **Ratios and Proportional Relationships**	

RP	**Ratios and Proportional Relationships**	
A	**Understand and use ratios to solve problems.**	
3	Solve problems involving ratios and rates.	
d	Convert measurement units within and between two systems of measurement.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will covert measurement units within two systems of measurement while solving problems. The student will covert measurement units between two systems of measurement while solving problems.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems Given the conversion factor (e.g., 1" $\approx$ 2.54 cm) use ratios to compare sizes of figures.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to exclude cubic and squared units. Limit decimal values to thousandths. No temperature conversions without embedded formulas Unit rate conversions should be embedded in the problem when converting between two systems.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.NS.A.1.a
NS **Number Sense and Operations**	
A **Apply and extend previous understandings of multiplication and division to divide fractions by fractions.**	
1 Compute and interpret quotients of positive fractions.	
a Solve problems involving division of fractions by fractions.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will compute quotients of fractions divided by fractions. The student will interpret quotients of fractions divided by fractions. The student will solve word problems involving division of fractions by fractions using visual representations.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Fractions can be greater than one. Limit the denominator values to less than or equal to one hundred.	**Calculator Designation** **NO** – a calculator will not be available for items

Grade 6 Mathematics

Mathematics	6.NS.B.2

NS B 2	Number Sense and Operations
	Compute with non-negative multi-digit numbers, and find common factors and multiples.
	Demonstrate fluency with division of multi-digit whole numbers.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will use multiple representations to model real-world and mathematic problems involving division of multi-digit whole numbers. The student will critique the reasoning of others, identifying errors and alternate approaches to solving problems involving division of multi-digit whole numbers. The student will decontextualize and contextualize problems and solutions to explain his or her reasoning in division of multi-digit whole numbers. The student will identify and explain patterns and the structure of the problems with specific focus on the properties of mathematics when solving problems involving division of multi-digit whole numbers. The student will communicate his or her reasoning precisely to problems involving division of multi-digit whole numbers.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems Items may involve error analysis identifying correct and incorrect answers or processes.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Divisor is limited to three digits. Dividend is limited to six digits. Quotients are rational. Fluency refers to accuracy and efficiency and does not equate to memorization.	**NO** – a calculator will not be available for items

Grade 6 Mathematics

Mathematics	6.NS.B.3

NS B 3	**Number Sense and Operations**
	Compute with non-negative multi-digit numbers, and find common factors and multiples.
	Demonstrate fluency with addition, subtraction, multiplication and division of decimals.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will use multiple representations to model real-world and mathematic problems involving addition, subtraction, multiplication and division of decimals.	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will critique the reasoning of others, identifying errors and alternate approaches to solving problems involving addition, subtraction, multiplication and division of decimals. The student will decontextualize and contextualize problems and solutions to explain his or her reasoning involving addition, subtraction, multiplication and division of decimals. The student will identify and explain patterns and the structure of the problems with specific focus on the properties of mathematics when solving problems involving addition, subtraction, multiplication and division of decimals. The student will communicate his or her reasoning precisely to problems involving addition, subtraction, multiplication and division of decimals.	**Sample Stems** Items may involve error analysis identifying correct and incorrect answers or processes.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to the thousandths place with division. Multiplication can be an "x", "dot" or the use of grouping symbols. Fluency refers to accuracy and efficiency and does not equate to memorization.	**NO** – a calculator will not be available for items

Grade 6 Mathematics

Mathematics	6.NS.B.4.a

NS	**Number Sense and Operations**	
B	**Compute with non-negative multi-digit numbers, and find common factors and multiples.**	
4	Find common factors and multiples.	
a	Find the greatest common factor (GCF) and the least common multiple (LCM).	

<u>Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.</u>	<u>DOK Ceiling</u> 3
The student will calculate common factors and multiples. The student will calculate the greatest common factor (GCF) and least common multiple (LCM).	<u>Item Format</u> Selected Response Constructed Response Technology Enhanced
	<u>Sample Stems</u>
<u>State Assessment Content Limits/Boundaries Classroom Work Should Include Extension</u> GCF of three whole numbers that is limited to less than or equal to one hundred. LCM of three whole numbers that is limited to less than or equal to twelve.	<u>Calculator Designation</u> **NO** – a calculator will not be available for items

Grade 6 Mathematics

Mathematics	6.NS.B.4.b

	Number Sense and Operations
NS	**Number Sense and Operations**
B	**Compute with non-negative multi-digit numbers, and find common factors and multiples.**
4	Find common factors and multiples.
b	Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
	DOK Ceiling
	3
The student will use the distributive property to decompose a sum of two whole numbers using a common factor as a multiple of a sum of two whole numbers.	**Item Format**
	Selected Response
	Constructed Response
	Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to whole numbers to one to one hundred.	**NO** – a calculator will not be available for items
Limited to the sum of two whole numbers.	

Grade 6 Mathematics

Mathematics	6.NS.C.5

NS C 5	**Number Sense and Operations**
	Apply and extend previous understandings of numbers to the system of rational numbers.
	Use positive and negative numbers to represent quantities.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 2
The student will use positive and negative numbers to represent quantities in real-world situations.	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will explain the meaning of zero in real-world situations.	
The student will understand that positive and negative numbers are used together to describe quantities that have opposite values.	**Sample Stems**
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation** **NO** – a calculator will not be available for items

Updated 9/17/19

Grade 6 Mathematics

Mathematics		6.NS.C.6.a
NS	**Number Sense and Operations**	
C	**Apply and extend previous understandings of numbers to the system of rational numbers.**	
6	Locate a rational number as a point on the number line.	
a	Locate rational numbers on a horizontal or vertical number line.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling**
	3
The student will locate rational numbers on a horizontal number line. The student will locate rational numbers on a vertical number line.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limit decimal numbers to the thousandths. Limit the denominator to ≤ ±10.	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.NS.C.6.b

NS	Number Sense and Operations
C	Apply and extend previous understandings of numbers to the system of rational numbers.
6	Locate a rational number as a point on the number line.
b	Write, interpret and explain problems of ordering of rational numbers.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will write statements using rational numbers in mathematical and real world contexts. The student will interpret rational numbers in mathematical and real world contexts. The student will explain problems involving ordering of rational numbers in mathematical and real world context.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems Order and analyze the outcomes of a race. The student would write or choose a statement explaining the situation.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limits on decimal numbers to the thousandths. Limit the denominator to ≤ ±100, and benchmark fractions.	**NEUTRAL** – a calculator may or may not be available for items

Updated 9/17/19

Grade 6 Mathematics

Mathematics	6.NS.C.6.c
NS Number Sense and Operations	
C Apply and extend previous understandings of numbers to the system of rational numbers.	
6 Locate a rational number as a point on the number line.	
c Understand that a number and its opposite (additive inverse) are located on opposite sides of zero on the number line.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling
	3
The student will understand that a number and its opposite (additive inverse) are located on opposite sides of zero on the number line.	**Item Format**
	Selected Response
	Constructed Response
The student will understand that the sum of a number and its opposite will always be zero (additive inverse).	Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
This must include a number line.	**NEUTRAL** – a calculator may or may not be available for items
The item should not require that the student define additive inverse.	

Updated 9/17/19

Grade 6 Mathematics

Mathematics	6.NS.C.7

NS C 7	**Number Sense and Operations**
	Apply and extend previous understandings of numbers to the system of rational numbers.
	Understand that the absolute value of a rational number is its distance from 0 on the number line.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will understand that distances are always positive.	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will understand that the absolute value of a rational number is its distance from zero on the number line.	
The student will interpret absolute value as a quantity for a positive or negative amount in real-world situations.	**Sample Stems** Which has a greater absolute value 56 or -87?
The student will calculate the absolute value of integers.	

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
No operations other than a negative sign may be inside the absolute value bars.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.NS.C.8

NS C 8	**Number Sense and Operations**
	Apply and extend previous understandings of numbers to the system of rational numbers.
	Extend prior knowledge to generate equivalent representations of rational numbers between fractions, decimals and percentages (limited to terminating decimals and/or benchmark fractions of 1/3 and 2/3).

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will generate equivalent representations of rational numbers between fractions, decimals and percentages.	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will convert fractions to decimals.	
The student will convert decimals to fractions.	**Sample Stems**
The student will convert a fraction to a percent and vice versa.	
The student will convert a decimal to a percent and vice versa.	

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to terminating decimals up to thousandths place. Fractions that will result in a repeating decimal must be limited to one third or two thirds.	**NO** – a calculator will not be available for items

Updated 9/17/19

Grade 6 Mathematics

Mathematics	6.EEI.A.1

EEI A 1	**Expressions, Equations and Inequalities** **Apply and extend previous understandings of arithmetic to algebraic expressions.** Describe the difference between an expression and an equation.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will describe the difference between an expression and an equation. - Equation contains two quantities that are equal to each other (e.g., 2x=10) - Expressions do not contain an equal sign (e.g., x-10) The student will include two quantities with an equal sign between the quantities, when asked to write an equation.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.2.a

EEI	Expressions, Equations and Inequalities	
A	Apply and extend previous understandings of arithmetic to algebraic expressions.	
2	Create and evaluate expressions involving variables and whole number exponents.	
a	Identify parts of an expression using mathematical terminology.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling
	2
The student will identify parts of an expression using mathematical terminology.	**Item Format**
	Selected Response
	Constructed Response
	Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
	NEUTRAL – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.2.b

EEI	Expressions, Equations and Inequalities	
A	**Apply and extend previous understandings of arithmetic to algebraic expressions.**	
2	Create and evaluate expressions involving variables and whole number exponents.	
b	Evaluate expressions at specific values of the variables.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 2
The student will evaluate expressions by substituting specific values for the given variables.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to whole number exponents up to the third power. Limit substituted values to positive rational numbers. Limit decimals to the thousandths place. Problems may include expressions that arise from formulas used in real-world situations.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.2.c

EEI	**Expressions, Equations and Inequalities**	
A	**Apply and extend previous understandings of arithmetic to algebraic expressions.**	
2	Create and evaluate expressions involving variables and whole number exponents.	
c	Evaluate non-negative rational number expressions.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will evaluate numerical expressions using order of operations.	**DOK Ceiling** 2
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to whole number exponents up to the third power. Correct answers should not be found by working left to right. Limited to no more than five operations.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.2.d

EEI	**Expressions, Equations and Inequalities**	
A	**Apply and extend previous understandings of arithmetic to algebraic expressions.**	
2	Create and evaluate expressions involving variables and whole number exponents.	
d	Write and evaluate algebraic expressions.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will write algebraic expressions to represent quantities in real-world and mathematical problems. The students will evaluate algebraic expressions.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems John says that, "five less than twice a number", is the same as "twice the value of five less than a number". Jenny says that, "subtract y from 5", and "y minus 5" are equivalent expressions.
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to Positive rational numbers. Limited to no more than two operations when writing expressions.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.2.e
EEI	**Expressions, Equations and Inequalities**	
A	**Apply and extend previous understandings of arithmetic to algebraic expressions.**	
2	Create and evaluate expressions involving variables and whole number exponents.	
e	Understand the meaning of the variable in the context of the situation.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will identify the variable. The student will define its meaning within the context of the situation.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems Which value in this situation should be identified with a variable? Which value is constant?
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.EEI.A.3

| EEI
A
3 | **Expressions, Equations and Inequalities**

Apply and extend previous understandings of arithmetic to algebraic expressions.

Identify and generate equivalent algebraic expressions using mathematical properties. | |

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will identify equivalent algebraic expressions resulting from the application of the properties. The students will generate equivalent algebraic expressions using mathematical properties. Students will identify or name the property used.	**DOK Ceiling** 2
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to Positive rational numbers. The distributive property should be limited to multiplication over addition. Note: 6NS.B4b	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.B.4

EEI **B** **4**	**Expressions, Equations and Inequalities** **Reason about and solve one-variable equations and inequalities.** Use substitution to determine whether a given number in a specified set makes a one-variable equation or inequality true.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will be able to use substitution to determine if a given number is a solution for a one-variable equation. The student will be able to use substitution to determine if a given number is a solution for a one-variable inequality.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to positive rational numbers and fractions with a denominator that is a factor of one hundred.	**Calculator Designation** **YES** – a calculator will be available for items

Updated 9/17/19

Grade 6 Mathematics

Mathematics	6.EEI.B.5

EEI B 5	**Expressions, Equations and Inequalities**
	Reason about and solve one-variable equations and inequalities.
	Understand that if any solutions exist, the solution set for an equation or inequality consists of values that make the equation or inequality true.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will understand that an equation will have one solution that will make that equation true. The student will understand that an inequality will have a solution set that will make the inequality true. The student will understand that an equation or an inequality may not have a solution set.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive rational numbers.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.B.6

EEI **B** **6**	**Expressions, Equations and Inequalities** **Reason about and solve one-variable equations and inequalities.** Write and solve equations using variables to represent quantities, and understand the meaning of the variable in the context of the situation.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will solve equations using variables. The student will write equations containing one variable to represent quantities. The student will understand the meaning of the variable in the context of the situation. The student will understand the solution in terms of the context of the problem including those without a solution.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive rational numbers. Limited to one-step equation.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.B.7

| EEI B 7 | **Expressions, Equations and Inequalities**

Reason about and solve one-variable equations and inequalities.

Solve one-step linear equations in one variable involving non-negative rational numbers. | |

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 1
The student will solve one-step linear equation in one variable involving non-negative rational numbers for real-world and mathematical problems.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.EEI.B.8.a

EEI	**Expressions, Equations and Inequalities**	
B	**Reason about and solve one-variable equations and inequalities.**	
8	Recognize that inequalities may have infinitely many solutions.	
a	Write an inequality of the form x > c, x < c, x ≥ c, or x ≤ c to represent a constraint or condition.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will write an inequality in the form: • x > c • x < c • x ≤ c • x ≥ c	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems John has at most $5. Jenny has at least 20 rabbits. The coldest temperature of the day was -12 degrees Celsius.
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension The student's response to the inequality may be reversed. (e.g., x<c or c >x) The value of c will represent a rational number.	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.EEI.B.8.b
EEI **Expressions, Equations and Inequalities**	

EEI	**Expressions, Equations and Inequalities**	
B	**Reason about and solve one-variable equations and inequalities.**	
8	Recognize that inequalities may have infinitely many solutions.	
b	Graph the solution set of an inequality.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will graph the solution set of the inequality on a number line. The student will recognize if the value is included (closed circle) or excluded (open circle) when graphing, and graph the situation appropriately.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
The student's response to the inequality can be reversed, but must be graphed correctly (e.g., x<c or c >x) Limit when given the inequality the variable must be on the left. This may involve real-world or mathematical problems.	**NEUTRAL** – a calculator may or may not be available for items

Updated 9/17/19

Grade 6 Mathematics

Mathematics	6.EEI.C.9.a

EEI	**Expressions, Equations and Inequalities**	
C	**Represent and analyze quantitative relationships between dependent and independent variables.**	
9	Identify and describe relationships between two variables that change in relationship to one another.	
a	Write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. The students will understand that one variable is dependent upon the other. The student will understand that "in terms of" indicates where the variables are located in the equation.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to two-variables with one operation.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.EEI.C.9.b

EEI	Expressions, Equations and Inequalities
C	**Represent and analyze quantitative relationships between dependent and independent variables.**
9	Identify and describe relationships between two variables that change in relationship to one another.
b	Analyze the relationship between the dependent and independent variables using graphs, tables and equations and relate these representations to each other.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will analyze the relationship between the dependent and independent variables using graphs. • When given a dependent value determine the independent value and vice versa. • Determine if the graph is increasing or decreasing. The student will analyze the relationship between the dependent and independent variables using tables. • The student will compare an input to an output • The student will determine what operations and numbers were used to complete the table. • The student will use a rule to complete the table. The student will analyze the relationship between the dependent and independent variables using equations. • The student will recognize the rule using a variable for either the independent or dependent variable. The student will compare these representations to each other.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive rational numbers. Limit the graphs to the first quadrant.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.1

GM **A** **1**	**Geometry and Measurement** **Solve problems involving area, surface area and volume.** Find the area of polygons by composing or decomposing the shapes into rectangles or triangles.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will find the area of composite shapes by dividing shapes into rectangles and triangles and applying the area formulas and adding the solutions together. The student will decompose polygons onto rectangles and triangles to determine the area of the shape. The student will compose polygons using rectangle and triangles and determine the area. The student will apply the techniques of finding the area of a polygon by composing or decomposing the shapes into rectangles or triangles to solve real-world problems.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive whole numbers.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.2.a

GM	**Geometry and Measurement**		
A	**Solve problems involving area, surface area and volume.**		
2	Find the volume of right rectangular prisms.		
a	Understand that the volume of a right rectangular prism can be found by filling the prism with multiple layers of the base.		

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
	DOK Ceiling 3
The student will discover that using visuals models produces the same volume as the formulas. The student will understand that the volume of a right rectangular prism can be found by filling the prism with multiple layers of the base.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to whole number dimensions.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.2.b
GM	**Geometry and Measurement**	
A	**Solve problems involving area, surface area and volume.**	
2	Find the volume of right rectangular prisms.	
b	Apply V = l * w * h and V = Bh to find the volume of right rectangular prisms.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
	DOK Ceiling 3
The student recognized that B is the base area. The student will recognize that the base is a rectangle. The student will find the volume by substituting values for l (length), w (width) and h (height) and then multiplying the values in real-world and mathematical problems.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to benchmark fractions and positive rational numbers. Any unit conversions will be within the same measurement system.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.3.a

GM	Geometry and Measurement	
A	Solve problems involving area, surface area and volume.	
3	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane.	
a	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the Cartesian coordinate plane.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will need to understand the x-axis is a horizontal number line and the y-axis is a vertical number line. The student will understand that the order of an ordered pair is (x, y) or (independent variable, dependent variable) The student will understand that the x- and y-axis intersect perpendicular at the origin (0, 0) creating four quadrants. • Quadrant I (+,+) • Quadrant II (-,+) • Quadrant III (-,-) • Quadrant IV (+,-)	**DOK Ceiling** 2
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to integers and benchmark fractions. If an item includes a graph, ordered pairs should fall on the intersections of the coordinate grid lines. If variables are needed x should be used for the independent variable and y should be used for the dependent variable.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.3.b

GM	**Geometry and Measurement**
A	**Solve problems involving area, surface area and volume.**
3	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane.
b	Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will recognize that when two ordered pair differs only by signs, the locations of the point are related by reflections by reflections across one or both axes. The student will recognize when a point is reflected over the x-axis, the sign of the y value is the opposite and the x value stays the same. The student will recognize when a point is reflected over the y-axis, the sign of the x value is the opposite and the y value stays the same.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

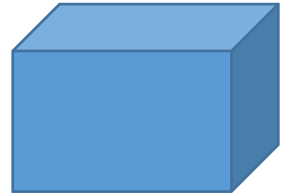| **State Assessment Content Limits/Boundaries Classroom Work Should Include Extension**	**Calculator Designation**
Limited to integers and benchmark fractions. Include a Cartesian coordinate plane. If an item includes a graph, ordered pairs should fall on the intersections of the coordinate grid lines.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.3.c

GM	**Geometry and Measurement**	
A	**Solve problems involving area, surface area and volume.**	
3	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane.	
c	Find distances between points with the same first coordinate or the same second coordinate.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will find the distance between two points with the same x value and different y values (vertical line) using coordinates and absolute value. The student will find the distance between two points with the same y value and different x values (horizontal line) using coordinates and absolute value.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to integers and benchmark fractions. May or may not include a coordinate grid. Ordered pairs should fall on the intersections of the coordinate grid lines.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.3.d

GM	**Geometry and Measurement**	
A	**Solve problems involving area, surface area and volume.**	
3	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane.	
d	Construct polygons in the Cartesian coordinate plane.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will plot all vertices and construct the resulting polygon.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems Construct a square in the first quadrant of the Cartesian coordinate plane. Construct a rectangle in the second and third quadrants of the Cartesian coordinate plane. Construct an isosceles right triangle in the Cartesian coordinate plane.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Ordered pairs should fall on the intersections of the coordinate grid lines.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.4.a

GM	Geometry and Measurement
A	Solve problems involving area, surface area and volume.
4	Solve problems using nets.
a	Represent three-dimensional figures using nets made up of rectangles and triangles.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling
	3

The student will represent a three-dimensional figure using nets made up of rectangles and triangles.

The student will represent the net(s) of a three-dimensional figure that is/are made up of rectangles and triangles.

Item Format
Selected Response
Constructed Response
Technology Enhanced

Sample Stems

How many rectangles make the net of this prism?

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to right prism and pyramids with rectangular or triangular bases.	**NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.GM.A.4.b

GM	**Geometry and Measurement**	
A	**Solve problems involving area, surface area and volume.**	
4	Solve problems using nets.	
b	Use nets to find the surface area of three-dimensional figures whose sides are made up of rectangles and triangles.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
The student will use nets (as opposed to formulas) to find the surface area of three-dimensional shapes whose faces are made up of rectangles and triangles to solve real-world and mathematical problems.	
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Nets may or may not be provided. Whole numbers only.	**Calculator Designation** **YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.A.1
DSP **A** **1**	Data Analysis, Statistics and Probability **Develop understanding of statistical variability** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
The student will recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems Which is an example of a statistical question? • What is my height? • What is the height of all the students in your school? The first question is not a statistical question, because you only obtain one response. The second question is a good statistical question, because you obtain multiple answers.
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension The word bias should not be a part of the stem or answers. The variability should not be affected by other factors, such as sample size or bias.	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.DSP.A.2

DSP A 2	Data Analysis, Statistics and Probability
	Develop understanding of statistical variability
	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread and overall shape.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**DOK Ceiling** 3
The student will recognize the appropriate measure of center for a distribution (mean, median or mode).	**Item Format** Selected Response Constructed Response Technology Enhanced
The student will recognize the spread of the given data for a distribution (range, IQR or MAD).	
The student will determine the overall shape (e. g. symmetrical or nonsymmetrical) of a distribution.	**Sample Stems**
The student will recognize the effect of changes of the data to the measures of center of the distribution.	
The student will recognize the effect of changes of the data to the measures of spread of the distribution.	
The student will recognize the effect of changes of the data to the overall shape of the distribution.	

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive rational numbers and benchmark fractions. Limit the overall shape to symmetrical or nonsymmetrical.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.A.3

| DSP A 3 | **Data Analysis, Statistics and Probability**

 Develop understanding of statistical variability

 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary from a single number. |

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling 3
The student will recognize that a measure of center for a numerical data set summarizes all of its values with a single number. The student will recognize that a measure of variation for a numerical data set describes how its values vary with a single number. The student will recognize the effects of extreme data points on the measures of center. The student will recognize the effects of the lack of extreme data points on the measures of center.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to positive rational numbers and benchmark fractions.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.4.a

DSP	Data Analysis, Statistics and Probability
B	Summarize and describe distributions.
4	Display and interpret data.
a	Use dot plots, histograms and box plots to display and interpret numerical data.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	

The student will use dot plots to display and interpret numerical data.
• Plot points
• Find median, mean, mode or range
• Analyze the data from the tables
 	
The student will use histograms to display and interpret numerical data.
• Find the intervals to create a histogram
• Position the bars to appropriate level
• Analyze the data from the tables
 	
The student will use box plots to display and interpret numerical data.
• Students will find, median, quartile 1 and 3, and the extremes to create
   • Quartile 1 –median of the lower half of the data
   • Quartile 3- median of the upper half of the data
• Find median or range
• Analyze the data from the tables
 	
The student will use graphical displays of data to solve real-world and mathematical problems.
	DOK Ceiling
	3

	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limited to using only positive whole numbers. Limit box plots to horizontal, and if needed no more than two stacked box plots. Dot plots may use symbols other than dots. Histograms should display data from a continuous variable.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.4.b

DSP	Data Analysis, Statistics and Probability
B	**Summarize and describe distributions.**
4	Display and interpret data.
b	Create and interpret circle graphs.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling 3
The student will create a circle graph using data in context of real-world and mathematical situations. • Write a ratio to part to whole • Convert ratio to percent • Use percent to convert to degrees • Construct the circle graph The student will interpret the data represented in circle graphs in the context of real-world and mathematical situations.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems If 25 people eat pineapple, 10 people eat oranges, 15 people eat strawberries out of 50 people. Create a circle graph showing the results.

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	Calculator Designation
Limit the samples sizes to yield whole number angle measurements. Limit angle measure to 30, 45, 60, 90 or 180 degrees. Protractor must be provided.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.5.a
DSP	**Data Analysis, Statistics and Probability**	
B	**Summarize and describe distributions.**	
5	Summarize numerical data sets in relation to the context.	
a	Report the number of observations.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
	DOK Ceiling 1
The student will identify the number of observations to summarize numerical data sets in relation to their context. The student will locate n-counts in real-world and mathematical situations.	**Item Format** Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation** **NEUTRAL** – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.5.b
DSP	Data Analysis, Statistics and Probability
B	**Summarize and describe distributions.**
5	Summarize numerical data sets in relation to the context.
b	Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	DOK Ceiling
	3

The student will describe the attributes (variables) under investigation.	**Item Format**
	Selected Response
The student will determine how the characteristics were measured.	Constructed Response
	Technology Enhanced
The student will identify the units of measurement used.	**Sample Stems**

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
	NEUTRAL – a calculator may or may not be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.5.c

DSP	**Data Analysis, Statistics and Probability**	
B	**Summarize and describe distributions.**	
5	Summarize numerical data sets in relation to the context.	
c	Give quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context of the data	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	

The student will determine measures of center (median, mean, and mode).
 	
The student will determine variability (range, interquartile range and/or mean absolution deviation)
 • Range-highest extreme minus the lowest extreme
 • Interquartile range-quartile three minus quartile one
 • Mean absolute deviation
    ▪ Step 1-Find the mean of the data set
    ▪ Step 2-Find the distance from each data point to the mean
    ▪ Steps 3-Then calculate the mean absolute deviation by finding the mean of the distance values found in step 2.
 	
The student will describe any overall pattern with reference to the context of the data.
 	
The student will describe any striking deviations (outliers) from the overall patterns with reference to the context of the data.
	DOK Ceiling
	3

	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems

State Assessment Content Limits/Boundaries Classroom Work Should Include Extension	**Calculator Designation**
Limited to positive rational numbers and benchmark fractions. Limit data set to no more than five values when calculating MAD.	**YES** – a calculator will be available for items

Grade 6 Mathematics

Mathematics	6.DSP.B.5.d
DSP	Data Analysis, Statistics and Probability
B	**Summarize and describe distributions.**
5	Summarize numerical data sets in relation to the context.
d	Analyze the choice of measures of center and variability based on the shape of the data distribution and/or the context of the data.

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	
Given a data set the student will recognize the appropriate measure of center based on the shape of the data. Given a data set the student will recognize the appropriate measure of center based on the context of the data. Given a data set the student will recognize the appropriate measure of variability based on the shape of the data. Given a data set the student will recognize the appropriate measure of variability based on the context of the data.	**DOK Ceiling** 3
	Item Format Selected Response Constructed Response Technology Enhanced
	Sample Stems
State Assessment Content Limits/Boundaries Classroom Work Should Include Extension Limited to positive rational numbers and benchmark fractions. Limit data set to no more than five values when calculating MAD.	**Calculator Designation** **YES** – a calculator will be available for items